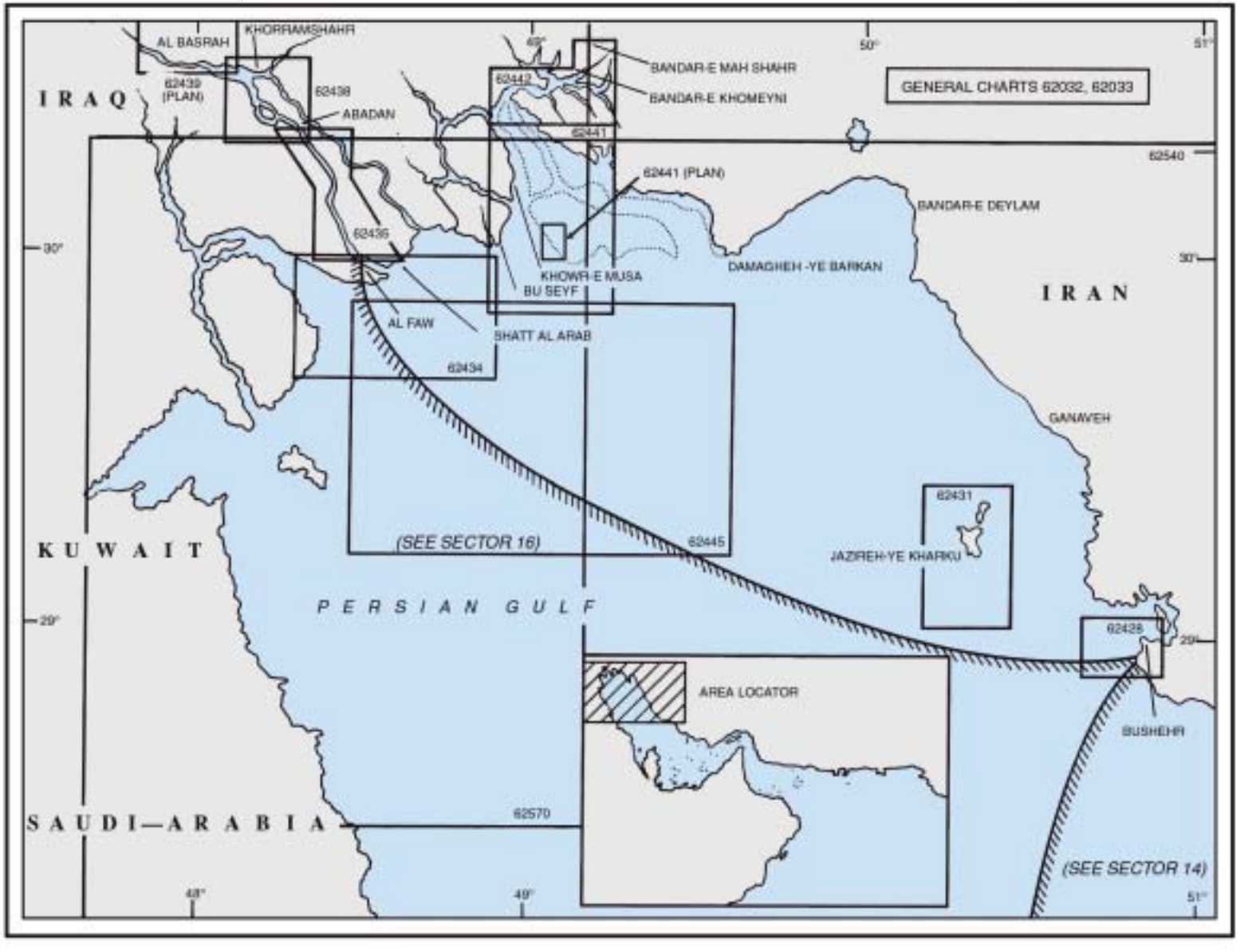
Click on "See Sector" to be hotlinked to that Sector.



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR 17 — CHART INFORMATION

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SECTOR 17

THE PERSIAN GULF—BUSHEHR TO THE SHATT AL ARAB

Plan.—This sector describes the coast, with adjacent islands and dangers along the N part of the Persian Gulf, from Bushehr to the head of the gulf. Klowr-e Musa and the Shatt al Arab are also described. The sequence of description is NW from Bushehr.

General Remarks

17.1 The stretch of coast from Bushehr to the Shatt al Arab, excluding the complex indentations between Damagheh-ye Bahrgan and the Shatt al Arab, has a total length of about 210 miles.

The coast for the most part is low and mountains, with the exception of Kuh-e Bang, are some distance inland. Two small islands lie off the S part of this coast.

Important river and tidal inlet oil ports are reached through the head of the gulf. Banks of less than 5.5m extend from 1 to 1.5 miles offshore; bars and shoals constitute nearshore obstructions. Exposed anchorage is 2 to 3 miles offshore; several tidal inlets offer shelter for small craft.

It has been reported that the ports of Abadan and Khorramshahr are not in operation. The Shatt al Arab must be cleared of wrecks and extensive dredging is required before these two ports may be used by ocean-going ships again.

Drilling platforms, which may or may not show lights, may exist from time to time almost anywhere in this area. All vessels heading for Iranian ports should report to Bandar Abbas Port Control on passing Ras al Kuh, stating their ETA at the Strait of Hormuz and their destination.

If clearance is not granted before passing Bandar Abbas, then vessels should begin to proceed to the Bandar Abbas anchorage.

Several offshore oil fields, some lying within charted limits or restricted areas, are situated within the waters covered by this sector. Vessels should navigate with extreme caution within the vicinity of or within such fields, as numerous above and below-water charted and uncharted dangers to navigation exist here. Unauthorized vessels should avoid entering restricted areas.

Winds—Weather.—The dominant wind in this area of the Persian Gulf is the NW shamal, which prevails for 9 months of the year. In winter, the shamals average force 3 to 4, although occasionally they may reach force 7 for 3 or more days at a time. During the summer, although there is not much change in the prevailing wind direction, the winds tend to decrease in force. The shamal causes dust storms in the Persian Gulf, which reduce visibility at sea to less than 2 miles.

Other strong local winds are experienced, such as the SE kaus, the NE nashi, and the SW suhaili. In the summer, from April to September, the coastal regions experience temperatures of over 32˚C.

The whole coast is almost rainless and humidity is high. In winter, from October to March, the coastal regions have a mild and relatively pleasant climate, with daytime temperatures from about 13˚ to 21˚C.

Tides—Currents.—Currents in the Persian Gulf are variable in strength and direction. Tide and current conditions at the head of the gulf are very complex because of the variation in flow of water from the Shatt al Arab at various seasons, the presence of extensive drying mud flats and tidal inlets, and the influence of onshore or offshore winds.

Along the coast between Bushehr and Damagheh-ye Bahrgan, the tidal currents run generally parallel to it and have a velocity of about 0.5 to 1.5 knots. In the vicinity of Jazireh-ye Khark and Jazireh-ye Kharku, tidal currents set NW and SE at a rate sometimes exceeding 2 knots. Off Damagheh-ye Bahrgan, the tidal currents set almost E and W.

The tidal currents in the lower part of Khowr-e Musa set NNW and SSE, turning about at the time of HW or LW. In the vicinity of Bandar-e Shahpur, currents attain a velocity of 3 knots.

Depths—Limitations.—The offshore approaches to the coast between Bushehr and Damagheh-ye Bahrgan are clear, except for two small easily-avoided islands about 30 miles NW of Bushehr.

Nearshore approaches should be made with caution and during HW because of the mud flats and shoals which fringe most of this coast. The 20m curve ranges from 5 to 24 miles offshore. Between Damagheh-ye Bahrgan and the mouth of the Shatt al Arab, about 55 miles W, the offshore approaches are mostly shallow and obstructed by shoals and drying mud flats, except for dredged channels leading into Khowr-e Musa and the Shatt al Arab. The 20m curve will be found from 15 to 40 miles off the poorly-defined shore.

Caution.—It has been reported that some charted oil production platforms in the Persian Gulf may have been removed. In many cases, all that remains of the platform are pipes extending from 3.1 to 6.1m above the waterline; these pipes do not show up well on radar and are a hazard to navigation.

Bushehr to the Shatt al Arab

17.2 **Bushehr** (28˚59'N., 50˚50'E.), a town at the N end of a 12-mile long peninsula, is situated on a rocky ridge having an elevation of not over 12m. The port facilities face the inlet which separates Bushehr from the mainland to the E. Between Bushehr and Damagheh-ye Bahrgan, about 88 miles NW, the coastline is fairly regular, except for two large shallow bays.

The coast itself consists of a low, sandy plain of varying width, with large marshy areas in places and an occasional rocky hill. A rough mountain range backs the plain and heights up to 1,037m are within 35 miles of the shore.

Kuh-e Bang, about 300m high, is 52 miles NNW of Bushehr, its summit rising about 2 miles inland; its seaward face is precipitous and from S it appears as a conspicuous bluff.

Anchorage is generally poor because of exposure to the shamal or the kaus. Small craft can shelter in the bay N of Bushehr and in the many tidal inlets and stream mouths.

The best anchorage for large vessels is in the bay E of Damagheh-ye Bahrgan. Anchorage in the lee of Jazireh-ye Khark offers shelter from the shamal or a kaus, but the holding ground is rocky and indifferent.

Between Damagheh-ye Bahrgan and the estuary of the Shatt al Arab, about 55 miles W, the coast is a complex of indentations and is poorly defined. The shores are almost entirely marshy or swampy and fringed by extensive mud flats. Most of the shores are subject to temporary inundation and are intersected by many tidal inlets and several large rivers. Backing the marshy shores is a low swampy plain, which extends a considerable distance inland before giving way to desert plains. Several small villages lie along the river banks and on the more solid parts of the plain. The important ports of Bandar-e Khomeyni and Bandar-e Mahshahr are about 34 and 41 miles from the bar at the entrance of Khowr-e Musa. Abadan and Khorramshahr are about 42 and 56 miles inside the Shatt al Arab from Rooka Channel entrance. Anchorage can be taken almost anywhere in the channels and inlets which intersect the fringing mud flats, and anchorage and berthing facilities are available at the four above mentioned ports; the degree of protection offered varies at the different anchorages.

Bushehr (28˚59'N., 50˚50'E.)

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17.3 Bushehr, once a major port for Iran, has been relegated to minor importance with the growth of the oil ports. However, Bushehr serves as the port for two provinces in Iran.

Winds—Weather.—The shamal occurs from June to September, and dust haze reduces visibility to less than 1 mile.

Gales from SW are frequent in winter; during January and February they prevent lightering operations about 3 days a week. The climate is hot and humid, with annual temperatures averaging 24˚C.

Tides—Currents.—Tidal currents are generally weak in the outer roadstead and attain a velocity of about 1 knot at springs in Inner Anchorage; they set NNE to ENE and SW to WSW. Off the town in Khowr-e Soltani, the currents are very strong. The winds have a considerable effect on the currents and the water level. A 1.5 knot N to S current has been reported along this section of coast. The shamal causes the currents to turn and lower the general level, sometimes as much as 0.3m; the kaus raises the general level. The highest spring tide is during July.

Depths—Limitations.—An extensive flat, with depths of less than 5m, fills the bay between Bushehr and Ras osh Shatt, 9 miles NW, except for an area of deeper water known as Khowr-e Deyreh, which forms Inner Anchorage. Obstructions and wrecks are charted in the vicinity of the channel entrance, about 4 to 5 miles W of **Jafreh** (28˚58'N., 50˚49'E.).

A flat, with depths of less than 2m, extends 2 miles NW and N of Bushehr; its NW end, known as **Ras al Marg** (29˚02'N., 50˚48'E.), extends to the entrance channel leading to port.

The flat E of Ras al Marg is known as **Kad Lakfeh** (Lakfeh Sands) (29˚01'N., 50˚49'E.). The sea seldom breaks on this flat, except at very LW or during strong winds.

Raq At Al Ali (29˚02'N., 50˚46'E.), with general depths of less than 2.5m, is the sandy S extremity of an extensive flat extending S from **Ras osh Shatt** (29˚06'N., 50˚42'E.) to a position about 4 miles WNW of the N end of Bushehr. The depths in the approach channels are maintained as far as possible by periodic dredging.

The harbor authorities should be consulted for the latest information. Vessels up to 170m in length, with a maximum draft of 9.5m, can use the port. The harbor consists of two berths, with a total length of 348m and an alongside depth of 8.1m. The dolphin berth in the turning basin off the above berths has a depth of 8m. Ships can discharge into lighters at the dolphin berth.

There is a naval berth which is often available to commercial vessels with a draft up to 6.4m. This berth is suitable only for direct delivery or special cargo discharge due to the restricted size of the berth. There is an oil pier about 100m long, with a depth of 7.5m alongside, on the SW side of **Khowr-e Pudar** (28˚58'N., 50˚52'E.).

Aspect.—The harbor at Bushehr is formed by **Khowr-e Soltani** (28˚59'N., 50˚51'E.), which extends SE for 2 miles between the peninsula and the mainland. The NE side of the harbor is composed of drying mud flats; the W side, formed by the peninsula, is partly fronted by a seawall which dries at LW. A village and tower are conspicuous on the N coast of a very low island lying NNE of Bushehr.

The quarantine station and hospital are prominent on an island lying 2.5 miles NE of Bushehr. Radio towers and several buildings, including one with high arched windows and three towers standing at the S end of Jafreh, are all prominent.

Pilotage.—Pilotage is compulsory for all ships or craft entering the dredged channel and proceeding to Bushehr. The pilot boards ship at Outer Anchorage, about 2 miles NW of the channel entrance. Vessels send their ETA 48 hours in advance. The message should include details of cargo to be discharged.

Regulations.—No quarantine message is necessary if there is a clean bill of health. The Medical Officer boards ship at the Outer Anchorage to grant pratique. The national flag of Iran must be displayed at all times while the ship is in port.

Anchorage.—Ships waiting to enter Khowr-e Soltani, or whose draft will not permit them to enter Inner Anchorage, should anchor in Outer Anchorage as convenient NW of the entrance to the dredged channel. The anchorage is open to the shamal and the kaus. A small vessel may anchor, temporarily, in a depth of about 4m, with the building with two towers, standing 1.5 miles NNE of Jafreh, bearing about 080˚, distant 0.5 mile.

Khowr-Deyreh (29˚01'N., 50˚48'E.), in which is situated Inner Anchorage, is an area about 1 mile long, with depths of 4.9 to 6m, mud, good holding ground. The anchorage is approached through the outer entrance channel. The farther NE anchorage is taken, the better the shelter from the shamal.

Directions.—Approaching from SE, a vessel should pass about 6 miles off Ras-e Halileh and proceed NW, in depths not less than 11m, until Outer Anchorage is reached. Depths decrease regularly as the coast is approached.

From Outer Anchorage, steer in the fairway of the buoyed channel to Inner Anchorage. The range beacon alignment of 043˚ should be strictly adhered to. From Inner Anchorage,

steer through the buoyed channel, whose axis runs 143˚ to 323˚ to the harbor.

The turn into this fairway is sharp, therefore caution is advised.

Caution.—A ship bound for Khowr-e Soltani should note that a turn of 100˚ must be made at the junction of the outer and inner channels where the width is 0.5 mile. The tidal currents set E and W across the mouth of Khowr-e Soltani and off the town the currents are strong. The shamal lowers the water level; the kaus raises it.

Jazireh-ye Khark (Kharg Island) (29˚14'N., 50˚19'E.)

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17.4 Jazireh-ye Khark (Kharg Island) (29˚14'N., 50˚19'E.) and Jazireh-ye Kharku lie about 19 and 21 miles WNW and NW, respectively, of **Ras osh Shatt** (29˚06'N., 50˚42'E.).

Jazirat-ye Khark, the S and larger of the two islands, has table-topped hills running N and S throughout the island.

A small domed building, known as **Didabun Tomb** (29˚15'N., 50˚18'E.), stands near the island's summit. About 0.5 mile NE of the summit is Mir Mohammed Tomb, a conspicuous conical tower topped by a small dome.

Hills that are at the S end of the island terminate in several precipitous bluffs on which there are detached hummocks.

The hills at the NW part of the island terminate in cliffs. A wedge-shaped hill at the N end of the island is prominent. Gas flares, some burning from towers, are conspicuous from the offing.

A lighted radio mast is conspicuous, and a tank farm near the S and SW end the island, appears prominently.

The W coast of Jazireh-ye Khark consists of several rocky points, between which are sandy beaches; the hills on that side end abruptly in cliffs. On the E side of the island is a cultivated plain terminating NE in a low, sandy point, on which is situated the airport.

A high radio mast, marked by red lights, stands near the NE end of the island. A naval boat basin, protected by breakwaters, is situated about 1 mile W of the NE extremity.

Fisherman's Harbor, protected by a breakwater, is situated 0.5 mile W of the NE end of the island.

Jazireh-ye Khark is fringed by a reef which extends as far as 0.4 mile offshore. A sandspit, with a least depth of 4m, extends almost 1 mile E from the NE end of the island.

A velocity of 2 knots or more is attained over the spit with a SE tidal current.

A bank with depths less than 18.3m extends 1.5 miles SE from the SE side of the island.

Jazireh-ye Kharku (29˚19'N., 50˚21'E.), controlled by the Navy, is an uninhabited, very low island, composed of white sand covered by coarse grass.

Except off its steep-to N end, the island is reef-fringed for almost 1 mile offshore. There is a light shown from the N end of the island. Submarine oil pipelines connect the islands with the mainland. The waters adjacent to the island are prohibited to commercial shipping.

In the channel between the two islands, the fairway is about 1 mile wide, with irregular depths ranging from 7.3 to 11.3m.

A depth of 9.7m can be carried through the channel. Local knowledge is necessary.

An obstruction lies about 1.3 miles E of the S Extremity of the island. A stranded wreck lies 1.5 miles ESE of the S extremity of the island.

17.5 Kharg Island Oil Terminal (29˚14'N., 50˚20'E.), the principal crude oil-loading terminal in Iran, is situated about 0.5 mile E of Jazireh-ye Khark. Other facilities are situated SW and W of the island.

Winds—Weather.—The prevailing winds are from the NW, so the loading pier is partially sheltered. Southeast winds, strong during the winter, may cause berths to become untenable.

From May to September, the weather is very hot and humid, whereas from November to March, the weather is mild and pleasant.

Tides—Currents.—The maximum tidal rise is 2.4m, with an average tidal height of 1.2m above chart datum.

Tidal currents generally set parallel with the E coast and loading pier, with a maximum velocity of about 1.5 knots. In the vicinity of the N end of the loading pier a strong W set is experienced for a short time about 4 hours after high tide.

Depths—Limitations.—Depths in the approaches are adequate for deep-draft ships. There are numerous oil rigs and platforms, connected to shore by submarine pipelines, situated off the SW coast of Jazireh-ye Khark.

Other submarine oil pipelines are laid from the S end of the island SW to the Feridoon Oil Field and the Ardeshir Oil Field.

Main Jetty is a T-head pier connected to the shore by a stone causeway and trestle jetty. The T-head is 1,840m long, with five berths on its outer face and five berths on its inner face, which can best be seen on the chart.

The berths are exposed to SE winds; winter storms can raise seas 2 to 3m high. Limiting factors at each berth are, as follows:

Main Jetty		
Berth No.	**Depth alongside**	**Maximum vessel size**
1	21.3m	250,000 dwt*
2	19.8m	38,000 dwt*
3	21.3m	275,000 dwt
4	20.1m	65,000 dwt*
5	21.3m	275,000 dwt
6	18.3m	100,000 dwt
7	18.3m	175,000 dwt
8	19.2m	45,000 dwt*
9	17.4m	175,000 dwt
10	16.1m	90,000 dwt
* Reported to be not operational.		

An oil company boat harbor is formed by the inner part of the causeway and a N breakwater. Lights mark the N and S sides of the entrance. The least depth of water alongside tug berths is 6m. Other berths have 4m.

Sea Island Terminal (Azarpad Terminal) is an offshore oil loading platform situated about 2 miles NW of the S extremity of Jazireh-ye Khark. The terminal is 548m long, and provides two inner berths and two outer berths, best seen on the chart. The berths cannot handle vessels that are less than 150,000 dwt. Limiting factors are, as follows:

Sea Island Terminal		
Berth No.	**Depth alongside**	**Maximum vessel size**
11	32.0m	500,000 dwt
12	31.4m	300,000 dwt
14	28.0m	300,000 dwt*
15	32.0m	500,000 dwt
* Reported to be not operational.		

All the above berths can become untenable during prolonged periods of strong NW winds. Tankers should use the maximum number of mooring lines. Quick release hooks are provided.

Darius Oil Loading Terminal (Darood Terminal) is an offshore mooring berth situated about 1 mile off the SE corner of Jazareh-ye Khark. There is only one berth. The tanker is secured to five mooring buoys with both anchors out. Unlit buoys mark the oil pipeline between shore and terminal.

The mooring berth, in a depth of about 19.8m, can accommodate a tankers up to 160,000 dwt loading to a maximum draft of 18.3m, provided the distance from the stern to the loading manifold does not exceed 152m.

The terminal operates 24 hours a day, 7 days a week.

The sea berth is somewhat protected from the prevailing NW wind, but berthing may become impossible after prolonged S winds.

An oil company small craft harbor, situated close N of the shore end of the oil pipeline to Darius, is formed by a stone causeway with a breakwater extending N from its outer end. There are depths of 4.6 to 5.5m in the harbor. The approach channel is marked on each side by three lighted beacons.

Khemco Loading Pier, about 0.5 mile SE of the small craft harbor, consists of two piers extending ESE for 0.3 mile to a 360m long T-head formed by dolphins. Liquefied sulphur and LPG are loaded in tankers berthed alongside the T-head.

Berthing is carried out day and night. There is 12.8m of water alongside the T-head at low tide.

Pilotage.—Pilotage is compulsory from the anchorage area to the terminals. Berthing Masters,acting in a pilot capacity, board tankers at the anchorage, berth them, and remain aboard as Safety and Loading Coordinators.

Dry cargo vessels discharging cargo at the anchorage do not require a pilot or Boarding Master. The Khemco Terminal Berthing Master will board ship at the anchorage or outside the port area.

Berthing Masters board tankers bound for Kharg Island Terminal and Sea Island Terminal about 1.2 miles E of the Kharg T-head pier. The pilot for Darius Oil Loading Terminal boards 2 miles seaward of the terminal. Vessels are berthed day or night.

Ships should not approach closer without the Boarding Master aboard. Ships bound for Sea Island Terminal must, unless otherwise instructed, proceed to the anchorage off the E side of the island.

Vessels send their ETA 72 hours, 36 hours, and 24 hours in advance through Abadan (EQZ); an additional 12-hour notification is required for Darius Oil Loading Terminal. The 36-hour message should contain the following information:

1. Cargo requirements and supplier.
2. Deballasting time.
3. Loading rate.
4. ETA at the anchorage.
5. Arrival and departure drafts.
6. 0ther information as required by the operators.

Vessels should not use VHF channels 10, 12, 16, and 77 for intership traffic while in the anchorage and alongside. A continuous listening watch on VHF channel 16 should be maintained while at anchor.

Regulations.—There is a port radio station at Jazireh-ye Khark. Ships are advised to use this VHF/RT when within range of the harbor, using standard frequencies. In poor visibility, when a ship's approach may not be observed from shore, radiotelephone use can avoid delay in berthing. There is an oil company coast radio station at Abadan (EQZ). Ships bound for Kharg Terminal should prefix messages with "Khargiran" and clear the same with station EQZ, which handles all traffic for Kharg Island Oil Terminal.

A Standard Message from the oil company is transmitted after each traffic list via Abadan (EQZ). This message sets forth safety conditions and requests necessary information. Acknowledgment of the message is requested by radio and is mandatory.

Pratique can be requested by radio via Abadan (EQZ) 72 hours before arrival in the harbor. The Standard Quarantine Message should be sent to "Port Health Officer Khargiran." Regulations generally pertain to all terminals within the harbor.

All vessels within Iran territorial waters (12 miles seaward of land and adjacent islands) and harbor limits must display the Iranian national flag during daylight hours.

On arrival, all ships proceed E of the East Harbor Limit, anchor, and await the Berthing Master. All the area within the harbor limits is a Prohibited Anchorage and Restricted Maneuvering Area.

Only ships berthing and unberthing are allowed to transit the area. While at anchor, ships should maintain normal listening watch on Abadan Radio (EQZ) and VHF/RT (Kharg Island).

Tending mooring lines while at Sea Island Terminal must be done one line at a time and under supervision of a ship's officer.

Anchorage.—Anchorage, sheltered from the shamal, can be taken, in 21.9m, good holding ground, about 2 miles E of Kharg Island Terminal, and E and SE of the East Harbor Limit.

Dry cargo vessels anchor in at least 21.9m about 0.5 mile SE of Darius Oil Loading Terminal. Anchorage off the E side of Jazireh-ye Khark is sheltered when the Outer Anchorage at Bushehr is untenable due to the weather. Dry cargo vessels anchor on good holding ground NE of the **Naval Boat Harbor** (29°15'N., 50°20'E.) and discharge cargo into barges.

The limits of the Prohibited Anchorages and Restricted Areas as well as the Harbor Limits are best seen on the charts.

Directions.—Ships approaching from W, and going to anchor E of Jazireh-ye Khark, should pass S of the island.

Ships approaching Kharg from S should keep at least 2.5 miles E of the island; ships approaching from N should keep W of the island and outside the Restricted Area. Ships should not pass between the islands.

17.6 The coast between **Ras osh Shatt** (29˚06'N., 50˚42'E.) and Ganaveh is low and sandy. Inlets, breaking the continuity of the coast in several places, have shallow entrances but greater depths within. Local craft transit some of the inlets to villages.

Bandar-e Rig (29˚29'N., 50˚38'E.), a village, is fronted by two sandy islets which give partially-sheltered anchorage to small craft.

Ganaveh (29˚33'N., 50˚31'E.), a group of villages situated about 0.5 mile inland, has a few date palms and a conspicuous large tomb with a spire.

Bandare Khowr (29˚34'N., 50˚31'E.), the tidal mouth of a river fronting Ganaveh, has drying sands extending 0.5 mile off its mouth. Large dhows can enter the river at HW. A water tank, a radio mast, and lighted derrick post are conspicuous.

An oil company has quarters SE of the river entrance, which is marked by a beacon. Stakes mark the sides of the river channel, with the port side markers having oil drum topmarks. About 183m within the entrance is a jetty with steps which affords a sheltered landing at all stages of the tide.

Anchorage can be taken, in about 5.5m, good holding ground of clay and mud, about 2 miles offshore SW of Ganaveh. Larger vessels anchor about 5 miles SSW of Bandar-e Khowr entrance, clear of the Prohibited Anchorage area.

The coast between Ganaveh and **Ras-e Tanb** (29˚56'N., 50˚09'E.) is low, sandy, and interspersed with steep, high hillocks. Tombs mark the summits of some hillocks.

Kuh-e Bang (29˚45'N., 50˚22'E.), a conspicuous mountain, has a summit rising 2 miles inland and a seaward face which is precipitous; from S this face appears as a conspicuous bluff.

Emam Hasan (29˚52'N., 50˚15'E.) is a village with a conspicuous mosque. Pipelines for oil are laid from the coast near the village W towards Damgheh-ye Bahrgan, WSW to an oil field SW of the entrance to Khowr-e Musa, and SW to offshore oil loading terminals. A flare burns on the coast near the pipeline landings; a lighted oil rig stands 7.5 miles W of Emam Hasan.

17.7 Barkan Oil Loading Terminal (29˚44'N., 50˚10'E.) is situated 20 miles NW of Ganaveh. The terminal consists of two berths. The terminal operates continuously night and day, 7 days a week. Berthing and unberthing, however, is only carried out in calm to moderate weather conditions.

Barkan Oil Center, situated on the coast 20 miles NNW of Ganaveh, may be identified by two oil flares which burn continuously near its vicinity.

Depths—Limitations.—The inner berth, consisting of a group of mooring buoys in a depth of about 15.5m, lies about 5 miles SW of Barkan Oil Center. It can accommodate tankers up to 45,000 dwt. The outer berth consists of an SBM, in a depth of 24m about 8 miles SW of Barkan Oil Center, and can accommodate tankers up to 250,000 dwt. An underkeel clearance of 1m is required at both berths.

There are no reported surface dangers in the area of the berths. However, anchorage is prohibited within 1.2 miles of the berths and within 1 mile on either side of the submarine oil pipelines laid between the berths and oil center.

When tidal and wind conditions oppose each other, it is incumbent upon the master to exercise caution on approaching the loading berths, especially at night and in poor visibility. Flood tidal currents set NW; ebb tidal currents set SE.

Radar is of great help in ascertaining distance from the buoy at night and in locating the floating loading hoses at night and during periods of low visibility. The tanker, when about 0.5 mile from the berth, should only have way on for steerage and should keep the SBM and floating hoses on the port bow.

Pilotage.—Pilotage is compulsory. Mooring Masters of the company (SIRIP), acting in the capacity of pilot, will board tankers about 2 miles from the outer berth. The Mooring Masters advise on berthing, loading etc., and are in charge of VHF radiotelephone ship-to-shore communications.

The vessel's ETA should be sent to SIRIP Liaison Office Khorramshahr, 72 hours in advance, followed by confirmation or amendment 24 hours and 12 hours before arrival. The 12-hour ETA should include the following information:

1. Ship's readiness to load.
2. Details of manifold sizes.
3. Time required to discharge clean ballast.

Barkan Oil Center Port Radio maintains watch on VHF channel 16 after the vessel's ETA is received.

Regulations.—All ships must display the Iranian national flag from the foremast while in the territorial waters of Iran.

Anchorage.—Anchorage can be taken in suitable depths about 2 miles SW of the SPM buoy.

Caution.—Submarine pipelines are laid from Barkan Oil Center to the offshore loading berths and also to Nowrouz Oilfield 49 miles WSW. They are also laid from a position 2 miles NW of the oil center to Bahrgan Sar Oil Field. Mariners should not anchor near the pipelines.

Port limits embracing Barkan Oil Loading Terminal and Barkan Oil Center extend about 10 miles offshore and are best seen on the chart. Vessels should not enter the port limits without permission from Barkan Oil Center Port Radio.

17.8 Khalij-e Deylam (30˚00'N., 50˚00'E.), a large bay, indents the low coast between **Ras-e Tanb** (29˚56'N., 50˚09'E.) and Damagheh-ye Bahrgan.

Bandar-e Deylam (30˚04'N., 50˚09'E.) is a coastal town with a large, conspicuous fort which appears as an island from the offing. Local craft can reach town at HW via a creek leading through drying mud flats. A high radio mast stands 2 miles S of the fort.

Anchorage can be taken, in about 7.3m, soft mud, about 4 miles offshore, or in 5.5m, clay, about 3 miles W of town. The anchorages are sheltered from the shamal; the kaus does not raise the usual sea and swell, even though it is strong.

A lighted oil rig stands 4 miles SW of **Shah Abu ol Shah** (30˚11'N., 50˚05'E.), a town near the head of the bay which is backed by a range of high hills extending to Damagheh-ye-Bahrgan.

Damagheh-ye Bahrgan (30˚00'N., 49˚34'E.), a very low strip of sand covered at HW, is fronted for at least 5 miles by mud flats, some of which dry. Two conspicuous date groves stand about 3 miles N of the point.

Caution.—A submarine pipeline is laid from Bahrgan Sar Oil Field to the coast 2 miles NW of Barkan Oil Center.

Mariners should not approach within 3 miles of Bahrgan Sar Oil Field and Hendijan Oil Field. Mariners are advised not to anchor near the pipeline. The limits of these oilfields are best seen on the chart.

17.9 Rud-e Zohreh (30˚04'N., 49˚30'E.) empties through a delta into the Persian Gulf. The river has several tortuous reaches but only one main channel. The river approach is through mud flats, with the channel marked by poles and a beacon; the latter is situated 2.5 miles SW of Damagheh-ye Bahrgan. Dhows and a local vessel with a draft of 2.4m have ascended the river to **Hendijan** (30˚15'N., 49˚43'E.).

Khowr-e Musa (30˚05'N., 49˚14'E.) is entered between Ras-e Tanub and Bu Seyf (Bu Sif). Navigation is restricted by tidal flats, which dry in places, to a constricted channel near the W shore of the estuary.

Khowr-e Musa is about 22 miles long and leads to a channel about 14 miles long with an average width of 305m, ending at Bandar-e Mahshahr. Khowr-e Musa is approached via a deep channel, marked by lighted buoys and beacons, about 25 miles long and 0.5 mile wide, which is entered at **Khowr-e Musa Lighted Float** (29˚37'N., 49˚35'E.).

At the inner end of the channel, in the vicinity of Lighted Buoy No. 5, depths decrease and the fairway becomes more constricted in the vicinity of The Bar. There was a dredged depth of 12.2m over a width 244m.

After clearing the bar, depths increase in the channel allowing commercial ships to transit as far as Bandar Khomeyni and tankers to the oil port of Bandar-e Mah Shahr, a total distance of 37 miles from the end of Bar Channel.

Fasht ol Mova (30˚04'N., 49˚10'E.) is a large area of flats, which dry in patches, between Ras-e Tanub, The Bar, and Khowr-e Musa Channel. There are numerous detached shoals, with depths of less than 9.1m, lying as far as 30 miles S, SE, and SSE of Ras-e Tanub.

Fasht ol Mova is traversed by several inlets, the principal one being **Khowr-e Qazlan** (30˚08'N., 49˚07'E.), which joins Khowr-e Musa about 21 miles N of Bu Seyf. The entire area is unsurveyed. It is reported that an unlighted metal platform with a disused tide gauge, standing on a shoal about 27 miles SSE of Ras-e Tanub, is a good radar target.

The shorebank, adjacent to the W side of the Khowr-e Musa approach channel, extends as far as 13 miles SE of Bu Seyf, and depths of less than 11.4m exist up to 27 miles SE. An oil platform, from which a light is shown, stands 11.5 miles SW of Khowr-e Musa Lighted Float.

Flares burn close N of the platform. There are lighted and unlighted oil rigs within 5 miles of the oil platform. A submarine oil pipeline is laid from the platform to the oil terminal at Barkan.

Ardeshir Oil Field (29˚15'N., 49˚35'E.) is connected by pipeline E to Kharg Island. Oil rigs, moved at intervals, constitute a possible hazard in the approaches to Khowr-e Musa.

17.10 The Bar (30˚00'N., 49˚03'E.), lying about 6 miles E of Bu Seyf at the entrance of Khowr-e Musa, is a very constricted channel with a dredged depth of about 12.2m (1992). It is the principal ship channel; within the bar the channel is 1.5 miles wide.

The banks in the entrance of Khowr-e Musa are liable to change. A conspicuous disused tide gauge, about 21m high, makes an excellent daymark. The sides of The Bar channel are marked by lighted beacons. The least width of the channel, between Buoy 15 and Beacon 22, is 302m.

Tides—Currents.—About 5 miles SE of The Bar, the tidal current attains maximum spring velocities of 1.5 and 1.5 knots on the flood and ebb, respectively.

The most difficult part of Khowr-e Musa, especially when the tidal currents are strong, is reported to be in the vicinity of its junction with **Khowr-e Vosta** (30˚23'N., 48˚55'E.).

Tidal currents of 3.5 knots on the flood and 4.5 knots on the ebb have been experienced in the vicinity of the bend 1.5 miles N of the junction.

Caution should be exercised when passing Qassar Bin Siswan, where the ongoing current attains a velocity of about 3 knots and raises eddies and tide rips over the shoal.

Depths—Limitations.—Qassar Bin Siswan (30˚12'N., 48˚58'E.), a shoal with a least depth of 1.2m and marked by a lighted buoy, lies in the middle of Knowr-e Musa. The main ship channel lies W of the shoal. An extensive drying reef lies on the E edge of the channel about 2 miles SSE of the shoal. Jazireh-ye Qabr-e Nakhoda lies on flats about 7 miles NNW of Qassar Bin Siswan.

The Khowr-e Musa turns ENE in the vicinity of Knowr-e Vosta and continues navigable for 5 miles or more when it then becomes the **Knowr-e Mah Shahr** (30˚27'N., 49˚10'E.).

Pilotage.—Pilotage is compulsory. The pilot vessel, painted white and with the name "Khor Musa" in black letters on each side of the hull, maintains station near the entrance to the dredged channel through the bar. When not on station, the pilot vessel is replaced by a tug. Pilots boards near Lighted Buoy No. 9 and Lighted Buoy No. 14 (29˚54.8'N., 49˚09.6'E.). Pilots will board ships at night. During adverse weather conditions, the pilot vessel may proceed above The Bar for shelter.

On request via radio, the pilot vessel will function as a radio beacon. Vessels requiring this service should make direct radio contact and obtain the precise position of the pilot vessel.

During periods of low visibility due to fog, dust, or sandstorms, the pilot vessel will, in addition to the usual signals under such conditions, sound the letters PV in Morse Code on the siren every 15 minutes beginning on each hour; the signal is sounded more frequently on the approach of a vessel.

Anchorage.—In the event of fog or a thick duststorm, anchorage can be taken in the W part of the channel W of lazireh-ye Qabr-e Nakhoda.

17.11 Bandar Khomeyni (30˚26'N., 49˚05'E.) (World Port Index No. 48460), a river port, is about 34 miles from the bar at the entrance to Khowr-e Musa. The port itself is built on reclaimed land enclosed by a coral wall; the adjacent area in all directions consists of barren marshes and mud flats. The port area is subject to flooding during heavy rains.

Winds—Weather.—The prevailing wind is the NW shamal, which blows throughout the summer months, starting about 0900 daily and dying out about sunset.

The N winds of winter are often interrupted by a strong SE kaus. With a combination of high wind and choppy sea, berthing and cargo lightering are not permitted. Rainfall is experienced during November through March and is usually associated with S gales. Between April and November shade temperatures range between 32˚ and 52˚C. Sun temperatures often reach 74˚C. Fog may occur during October and November.

Tides—Currents.—Tides are considerable affected by strong winds. Variations up to 3 hours in time and 0.9m in height are recorded. Northwest winds tend to lower the level and retard the predicted times of high and LW. Winds from SE have the opposite effect.

The mean tidal rise at HWS is 4m; the mean tidal rises at HWN is 3m. At The Bar, the MHHW has a rise of 3.4m and MLHW has a rise of 2.7m above chart datum. The rise of tide at The Bar is shown by an automatic tide indicator near Inner Khowr Musa Lighted Buoy No. 28.

At Bandar Khomeyni, the average time of HW is 1.5 hours later than on The Bar. The MHHW has a rise of 5.2m; the MLHW has a rise of 4.3m.

Depths—Limitations.—Bandar Khomeyni is an important commercial port, with the river providing a natural harbor.

Depths in the river off the berths range from about 16.5 to 36.6m. Dangers include a wreck, with a depth of 11.6m, and a 3.6m shoal marked by a lighted buoy. Both dangers are shown on the chart.

Berth No. 1 to Berth No. 10, shown on the chart fronting the SW side of Bandar Khomeyni, have been built on reclaimed land. The container terminal occupies berths 7 to 9 and is dredged to a depth of 12.1m. The ro-ro terminal is situated close E of Berth No. 7.

Railway Jetty is the W of two jetties fronting the S side of the port. They are about 550m and 530m long and provide berths for cargo vessels, in depths of between 10.4m and 14m.

The Ore Pier can accommodate vessels up to 35,000 dwt, with a maximum draft of 15m and a maximum length of 183m. The ore-loading berth is also used to load livestock.

There are numerous lighters in port. A barge basin exists on the E side of town and is dredged to 3.6m. A slip and jetties, lie close S of the barge basin, of which themselves and their approaches are dredged to 7m.

The grain terminal, which is dredged to 10m on its W side and 13m on its E side, extends about 0.1 mile SE from the area E of the barge basin. About 0.5 mile E of the grain terminal, a fertilizer plant exists, with six berths having depths alongside of about 16m. It was reported that silting had reduced the depths at the grain terminal.

A six tank chemical storage terminal exists at Bandar Khomeyni. Tankers up to 250,000 dwt can discharge at the jetty via pipelines to the storage tanks.

The Gulf Agency Company (GAC) operates a self-contained terminal situated N of the port of Bandar Khomeyni. The terminal is comprised of 17 jetties, with depths of 7m alongside.

Ships with a draft of 9.8m can enter port at any time of the day or night. Vessels with a draft of up to 13m can use the port, depending on the state of the tide.

The maximum vessel length that can be accommodated is 238m.

Pilotage.—Pilotage is compulsory. Pilots board ships SE of the entrance to the dredged channel through the bar. See paragraph 17.10 for further information.

Pilots will conduct ships during the day and at night, weather permitting, as far as Bandar Khomeyni anchorage, where a Berthing Master will board and bring the ship alongside a berth, if available. Pilots are ordered 1 hour before sailing via VHF channel 12.

The Quarantine Medical Officer boards ship on arrival off Bandar Khomeyni.

Vessels send thgeir ETA at Khowr-e Musa pilot station at least 48 hours in advance, 72 hours in advance if proceeding to the fertilizer complex wharf. The position of vessels 24 hours prior to arrival at the entrance to the Khowr-e Musa Channel must be forwarded to the Harbormaster.

Anchorage.—Anchorage can be taken immediately S and SW of the port, in 18 to 36m, in a mud holding ground. A minimum of protection is afforded; the anchorage is completely exposed to the prevailing winds and strong currents. Cargo can be discharged into lighters at the anchorage, weather permitting. A Quarantine Anchorage Area is situated off the jetties.

Directions.—Approaching Khawr-e Musa, steer a course for the **Lighted Float** (29˚37'N., 49˚35'E.) and then set a course through the buoyed channel for Lighted Buoy No. 5.

Then steer courses through The Bar and river channel to the anchorage SW of Bandar Khomeyni.

17.12 Bandar-e Mahshahr (30˚28'N., 49˚11'E.) (World Port Index No. 48450) is situated on Khowre Mahshahr, a branch of Khowr-e Musa. The port lies about 6 miles ENE of Bandar Khomeyni. Refined oil products are shipped via pipeline from the refinery at Abadan to the loading terminal at Bandar-e Mahshahr. Facilities also exist for the export of crude oil and oil products in drums.

Tides—Currents.—The mean tidal range at HWS is 4.9m; at HWN the mean tidal range is 4m.

Tidal currents in the vicinity of the port attain a velocity of 3 to 4 knots.

Ships arriving on the flood tide are berthed starboard side-to to the pier head; ships arriving on the ebb tide are berthed port side-to to the pier head.

Depths—Limitations.—The channel from Bandar Khomeyni to Bandar-e Mahshahr is deep and clear of dangers.

The SE shore of the river is foul but the outer extent of the foul area is marked by several beacons. The channel fairway off the piers is indicated by lighted beacons, aligned 056.5˚, and is best seen on the chart.

There is a least depth of 12.2m just off the berths. The harbor berths consist of six T-head piers, with minimum depths of 11.3 to 13.3m alongside. Pier No. 6 is adapted for the loading of LPG. Tankers up to 60,000 dwt, with a maximum length of 238m, can be accommodated alongside the pier heads.

Limiting factors include the dredged depths over The Bar, and NW winds along with tidal conditions. During June and July, the NW winds reach gale force at times.

Regulations.—The oil company will furnish a Port Information Booklet on arrival. All tankers should arrive with clean

ballast. The national flag of Iran should be displayed within territorial waters.

Tugs are usually employed for docking and undocking vessels. A Notice of Readiness will be accepted on arrival at Bandar Khomeyni.

Pilotage.—Pilotage is compulsory. Tankers are berthed day and night. Pilots board ships near the entrance to the dredged channel through The Bar. See paragraph 17.10 for further information.

A Berthing Master will board tankers at the anchorage and bring them to Bandar-e Mahshahr. Vessels send their ETA 24 hours before arrival at Khowr-e Musa pilot station and when pilot is embarked. There is a port radio station, with VHF radiotelephone, using VHF channels 12, 16, 20, and 26.

Anchorage.—Ships in transit for Bandar-e Mahshahr will anchor in the Bandar Khosnevni anchorage to disembark the pilot and await pratique.

Directions.—See paragraph 17.11.

17.13 From **Bu Seyf** (30˚01'N., 48˚55'E.), the W entrance point of Khowr-e Musa, the coast trends W about 13 miles to Khowr-e Bahmanshir.

Khowr-e Bahmanshir (30˚08'N., 48˚34'E.), lying E of and flowing parallel to the Shatt al Arab, is connected to that river by **Haffar Channel** (30˚25'N., 48˚10'E.), an artificial cutting; the island thus formed is known as **Jazireh ye Abadan** (Jazirat al Khidr) (30˚02'N., 48˚34'E.).

The unmarked channel of the inlet leads between mud flats and banks, in depths of 1.8 to 5.8m, and can be ascended for about 23 miles by vessels of shallow draft. The N part of the inlet has irregular depths and may be partially blocked by drying mud banks. Local knowledge is necessary.

The Shatt al Arab and its Tributaries

17.14 The **Shatt al Arab** (29˚57'N., 48˚35'E.) is formed by the confluence of the Tigris River and the Euphrates River, which occurs about 110 miles above the waters of the Persian Gulf.

The E and W banks of the Shatt al Arab, as far as **Khayyen Canal** (30˚27'N., 48˚07'E.), are in Iranian and Iraqi territory, respectively. The river entrance is a good radar target at a distance of 15 miles under normal conditions. The Shatt al Arab is navigable as far as Al Basrah by any ship able to cross the entrance bar. At the entrance of the Shatt al Arab, the river banks are very low and bordered by date palms.

Above the entrance, the soft mud banks are overgrown with weeds and coarse grass, with the adjacent land often inundated as far inland as Al Basrah. There are date groves and fertile farm lands in some places, especially above Al Faw.

Tides—Currents.—On a falling tide, the water in the river is fresh as far as **Al Faw** (29˚58'N., 48˚29'E.), except when the river is low in autumn, when it is slightly brackish. About 10 miles above Al Faw, the water is fresh at all times. The turn of the tide does not occur at LW ,as the flood current must attain sufficient strength to overcome the outflow of the river, which varies with seasonal changes; consequently, the time of change of the tidal current varies with the season.

During the dry season, when a large tide follows a small tide, the intervening ebb current is not sufficiently strong to be perceptible. For tidal information in the Outer Reach, see paragraph 17.19.

Depths—Limitations.—Depths in the approach to the Shatt al Arab are very irregular, with many long narrow shoals having depths from about 5.5 to 16.5m. Deeply-scoured channels lead between the shoals.

There are shoals, with depths of 8.5 to 10.4m, lying as far as 30 to 41 miles SE of **Ras al Bishah** (29˚55'N., 48˚34'E.), the W entrance point of the Shatt al Arab; South Mast Beacon stands about 2 miles WNW of the extremity of the point. Maraqqat Abu Allah, which dries in patches, extends ESE of Ras al Bishah.

Palinurus Shoal (29˚37'N., 48˚48'E.), with a least depth of 5.5m, lies about 22 miles SE of Ras al Bishah. Shoal patches, too numerous to identify and best seen on the chart, lie in the approaches to the Shatt al Arab. In the vicinity of Palinurus Shoal, the tidal current on the flood tide attains a velocity of 0.5 to 1.5 knots; on the ebb tide it attains a velocity 1.5 to 2.5 knots.

The many obstructions, wrecks, and foul areas, most of them marked by lighted buoys, lying in the vicinity of the approach channels, are best seen on the charts, as are the oil rigs in the approach.

Caution.—It has been reported (1993) that there are major hydrographic changes in the Shatt al Arab and the aids to navigation are unreliable. Charted information cannot be relied upon. Mariners are advised to use extreme caution when navigating in this vicinity.

17.15 Khawr al Amaya (29˚35'N., 48˚55'E.), a channel used mainly by deep-draft tankers, leads about 29 miles NW from the position (29˚25'N., 49˚09'E.) to Khawr al Amaya Oil Terminal. The channel can be used by tankers with a draft up to 21m. There is a least depth of 15.5m in the channel as far as the oil terminal.

In the entrance to Outer Bar Reach, an obstruction, with a swept depth of 9.1m, lies about 1 mile NNW of the oil terminal; a dangerous wreck lies in an approximate position about 1 mile further NNW.

Khawr al Kafka (29˚35'N., 48˚53'E.), a deep-water channel marked by lighted buoys, parallels Khawr al Amaya and leads to Mina al Bakr Oil Terminal.

Loaded tankers have priority when underway in both channels. The banks off the channels are subject to change and channel buoys are moved to reflect changes.

Caution.—It has been reported (1994) that the buoyage may be unlit, out of position, or not as charted.

17.16 Khawr al Amaya Oil Terminal (29˚47'N., 48˚48'E.) (World Port Index No. 48390) is the principal crude oil-loading port for S Iraq. The terminal consists of three parts or islands connected by catwalks. The NW part is a helicopter landing area. The central part has the loading berths and radio tower; the SE part consists of personnel living quarters.

Tides—Currents.—High water at the terminal occurs about 30 minutes before HW at Shatt al Arab Outer Bar. The mean spring rise is about 3m, while the mean neap rise is about 2.4m.

Tidal currents in Khawr al Amaya attain a rate of from 1 to 2 knots, setting NW on the flood and SE on the ebb. Cross-currents rarely exceeds 0.75 knot.

Currents in the vicinity of the terminal are rotary and rarely exceed 2 knots. Maximum currents generally parallel the berthing faces, but at certain stages of the tide, cross sets of 0.75 knot velocity are experienced.

Depths—Limitations.—The depth of water at the terminal is 17 to 22.3m. The terminal consists of 12 connected platforms, with a total length of 952m. The central platform has a berth on either side, which can accommodate vessels up to 120,000 dwt. A third berth on the W side of a N extension can accommodate a partially loaded 330,000 dwt tanker, with a maximum draft of 21m.

There are mooring dolphins and platforms ahead and astern of the loading terminal, which is connected by submarine pipelines to the oil tanks at Al Faw.

Pilotage.—Pilotage is compulsory in Khawr al Amaya buoyed channel for tankers with a draft of 15.9m or over, whether inbound or outbound. The pilot station for deep-draft vessels is situated in position 29˚25'N, 49˚06'E.

Tankers are berthed both day and night. Masters of ships inbound for the terminal should contact the pilot vessel and get instructions via radiotelephone as to whether to lie off, anchor, or proceed towards the pilot boat.

Vessels send their ETA to Basrah (YIR) 72 hours, 48 hours, and 24 hours in advance. Before entering Khawr Al Amaya, all inbound vessels are to contact Khawr al Amaya Harbormaster on VHF channel 14 or 16 for information regarding deeply-laden tankers using the restricted channel and for berthing and anchoring instructions.

Tankers arriving to load at Khawr al Amaya with a draft in excess of 15.9m must give their ETA at the pilot boarding position at least 12 hours in advance by contacting the pilot statVHF channel 16.

Regulations.—Outbound tankers have the right of way over inbound vessels.

Anchorage.—A temporary anchorage area lies on the NE side of Khawr al Amaya. It lies between about 9 and 11 miles SE of Khawr al Amaya Oil Terminal and may best be seen on the chart. Ships are not to anchor within the Prohibited Areas best seen on the chart.

It has been reported that the terminal is no longer in use.

17.17 Mina al Bakr Terminal (Al Bakr Terminal) (29˚41'N., 48˚49'E.) (World Port Index No. 48392) is a steel island structure built in Iraqi territorial waters in a depth of about 30m at MLWS. This crude oil-loading terminal is approached via Khawr al Kafka.

Depths—Limitations.—The loading structure has two platforms; each platform has two loading berths. The structure, which is 975m long and 107m wide, is capable of accommodating tankers up to 350,000 dwt. Vessels up to 366m long, with a draft of 21m, can depart the terminal by day or at night.

Loaded tankers have priority in the channel and all other ships must keep clear.

Regulations.—Ships bound for Iraqi territorial waters should contact Al Faw Control (YIS) at least 24 hours before arrival, requesting free pratique from the Medical Officer at Al Faw. The message should indicate the state of health of the crew.

Pilotage.—Pilotage is compulsory for all inbound and outbound tankers using the Khawr al Kafka buoyed channel and having a draft of 15.9m or over. Pilots board ships between the position 28˚35'N, 48˚53'E, and Fairway Lighted Buoy. There is a port radio station at the terminal.

For berthing, pilotage is compulsory for all ships; the berthing pilot boards 0.5 mile from the oil terminal. Tugs are normally used for berthing and unberthing. Vessels send their ETA 72 hours, 48 hours, 24 hours, and 12 hours in advance to Basrah (YIR). Vessels contact the terminal for instructions before entering buoyed channel.

Anchorage.—Two anchorage areas are situated close E of the Khawr al Kafka buoyed channel. Area A lies between 15.5 and 19.5 miles SSE of the oil terminal. Area B lies between 3.5 and 8.5 miles SE of the terminal.

Ships should not anchor within 1.5 miles of Mina al Bakr Terminal. Anchorage is prohibited in an area, best seen on the chart, surrounding the terminal.

17.18 Outer Bar Reach (29˚51'N., 48˚45'E.) is the outer dredged channel used by deep-draft ships in their approach from Khawr al Amaya to the Shatt al Arab. The depth in the reach is 8.1m. Although ships have crossed the bar with a draft of 10.6m on some spring tides, the usual acceptable maximum draft to Abadan is 9.4m.

The Outer Bar Reach should always be crossed at HW. Only the range beacons marking the fairway through the reach are described. The axis of the outer part of the channel is marked by Lighted Range Beacon C and Beacon D.

Pile Beacon (29˚50'N., 48˚43'E.), an old, disused semaphore, stands on the coastal bank. Several wrecks and obstructions, some marked by buoys and beacons, are charted on the shoals N and S of the Outer Bar Reach. Rooka Lighted Buoy, a fairway buoy moored in position 29˚48'N, 48˚48'E, when aligned with Pile Beacon, marks the S limit of an area in which ships are warned not to anchor; it also marks the limit of inward navigation for ships awaiting channel clearance.

The axis of the inner part of Outer Bar Reach is indicated by two pairs of range lights. The front light of the pair is shown from Beacon E and the rear light from Beacon F, situated about 1 mile NW of the front beacon.

The front light of the outer pair of range beacons is shown on Outer Bar Reach Front Beacon B; the rear light is shown on Outer Bar Reach Rear Beacon A, situated about 1 mile SE of the front light beacon.

17.19 Inner Bar Reach (29˚55'N., 48˚38'E.) extends about 6 miles WNW of Outer Bar Reach Rear Beacon D to a position about 2 miles ENE of **South Mast Beacon** (29˚56'N., 48˚34'E.). The axis of the dredged channel is marked by sets of range beacons, best seen on the chart.

Ranges, buoys, and beacons are always difficult to see during the summer, due to the prevailing dusty haze.

Tides—Currents.—In Outer Bar Reach, the currents set fairly through the channel, except at spring tides, when at either end there is a strong N set on the flood current and a strong S set on the ebb current; at neap tides, these cross-currents are inappreciable.

The maximum rate of the flood current, which at springs is from 1.5 to 2 knots and at neaps from 1 knot to 1.5 knots, occurs at about half tide.

The maximum rate of the ebb current is from 3 to 3.5 knots at springs and from 2 to 2.5 knots at neaps.

At spring tides, the flood current continues to flow for about 40 minutes after the time of HW; at neaps, it is irregular, but usually continues for about 1 hour after HW. The ebb current continues for about 30 minutes after LW at springs and for about 1 hour after LW at neaps.

During the river flood season, when there are small tides, the flood tidal current is not felt at all especially, upriver; even at a position about 1 mile above Outer Bar Reach Light Beacon D, little or no flood current is felt.

Regulations.—The following regulations are mostly for ships approaching Outer Bar Reach:

1. Outbound ships have priority and inbound ships shall wait until the former clear the dredged channel.
2. Permission to enter Outer Bar Reach must be obtained through the pilot vessel from the Channel Control Station (Al Faw).
3. An inbound vessel must not enter Outer Bar Reach later than 4 hours before HW; when so excluded, the vessel must wait until outbound vessels are clear. A vessel having received permission to enter and being unable to do so at the specified time shall inform the pilot vessel, and apply again for permission to enter when ready, in order that outbound traffic and dredging will not be delayed.
4. Vessels are not allowed to enter the dredged channel on a falling tide unless specific permission to do so has been obtained from the Channel Control Station.
5. A vessel entering from seaward must make the signal prescribed in "Signals" and be guided by the reply.
6. Vessels engaged in surveying display a red cone, and all vessels underway should make an effort to keep clear of them.
7. Vessels employed in lifting weights or moorings, or from which a diver is working, display a blue square flag; passing vessels should slow to the lowest safe speed and give such a vessel as wide a berth as possible. This rule also applies to small craft engaged in dredging, grabbing, or pile driving. Vessels should regulate their speed so as not to approach a vessel ahead closer than 1 mile. This applies to both inbound and outbound vessels.

The Health Declaration should be completed as usual and surrendered to the quarantine official at the ship's destination. This pratique does not clear ships for Iranian ports, which can be obtained on arrival at the port.

Signals.—The Channel Control Station at **Al Faw** (29˚58'N., 48˚29'E.), from which traffic signals are displayed, is equipped with radio. The traffic signals, and also tidal signals, are shown from masts on a large square building, as follows:

Al Faw Channel Control Station Signals		
Day	**Night**	**Meaning**
Two black balls, vertically disposed	One green light over one white light	The channel is closed to all outbound vessels

Al Faw Channel Control Station Signals		
Day	**Night**	**Meaning**
Three black balls, vertically disposed	Two green lights, one at each yardarm of the mast	The channel is closed to outbound vessels of 8.5m draft and over
A black cone, point up, or the International Code of Signals Flag N	See note below	No vessel is to pass the Channel Control Station
Note.—At night, the station communicates by flashing light; the leading vessel is to acknowledge the signal and repeat it to the next vessel astern until answered.		

Signals indicating the rise of the tide on the bar above chart datum are shown by day and at night at Al Faw, as follows:

Al Faw Tidal Rise Signals		
Day	**Night**	**Meaning**
A cone, point up	One white light	A rise of 0.3 or 2.1m
A cone, point down	One red light	A rise of 0.6 or 2.4m
Two cones, points up	Two red lights, vertically disposed	A rise of 0.9 or 2.7m
Two cones, points down	One red light over one white light	A rise of 1.2 or 3.0m
Two cones, point to point	One white light over one red light	A rise of 1.5 or 3.4m
Two cones, base to base	—	A rise of 1.8 or 3.7m
—	Two white lights, vertically disposed	A rise of 1.8
—	One green light	A rise of 3.7m
Additional signals: 1. By day—A square shape displayed from the opposite yardarm indicates an additional rise of 0.15m. 2. By night—One green light shown under any of the above signals, with the exception of the one indicating 3.7m, indicates an additional 0.15m.		

When the channel is closed to all outbound vessels, no tidal signals will be shown at Al Faw, but when the channel is closed only to vessels of 8.5m draft and over, they will be shown.

A dredge engaged in dredging operations will show the following signals:

1. By day, a dredge displays three black balls in the form of a triangle, one at the masthead and one at each yardarm.

Return to paragraph 17.21

2. When necessary, a red flag will be displayed at the yardarm, instead of the black ball, on that side on which the channel is not available for navigation.

3. At night, a dredge exhibits three white lights in the form of a triangle, one at the masthead and one at each yardarm. When necessary, a red light at the yardarm, instead of the white light, on that side on which the channel is not available for navigation.

4. When a dredge is working in Outer Bar Reach, inbound vessels arriving at Rooka Lighted Buoy must sound a prolonged blast on the whistle or siren and must not enter the channel until the dredge replies with four prolonged blasts or four long flashes with the blinker light; these signals indicate the dredge is keeping clear of the channel, or that while the dredge remains in the channel, vessels may pass her, in which case the above-mentioned dredging signals will be shown.

5. These signals are also to be used in all dredged channels, whenever a vessel wishes the dredge to leave the channel clear.

A vessel grounding between the outer lighted buoys and the inner bar should immediately display the following signals:

1. The International Code signal AT by day, or at night two red lights displayed vertically; in addition, if blocking the channel, the letter U should be sounded in Morse Code on the whistle or siren until answered by a tug or any following vessel repeating the signal.

2. Passing signals can be given by the grounded vessel, as follows:

a. The signal U shall be followed by one short blast to indicate that the vessel is aground on the starboard side of the channel and that following vessels may pass on the port side.

b. The signal U followed by two short blasts is to indicate that the vessel is aground on the port side of the channel and that following vessels may pass on the starboard side.

c. **Note.—**These signals shall be repeated by the following vessel to indicate that the intention is to attempt to pass.

A vessel requiring the assistance of the Channel Control Station should display flag T of the International Code of Signals where it can best be seen.

Caution.—When a strong shamal is blowing, a considerable amount of sand in the air sometimes makes it difficult to distinguish whether a red light is above or below a white light.

Great care should be taken, therefore, when any signal is shown which consists of both red and white lights.

17.20 Al Faw Reach extends from Inner Bar Reach to Al Faw, a distance of about 6 miles. The axis of the dredged channel is marked by lighted ranges, best seen on the appropriate chart.

Tides—Currents.—In the Shatt al Arab, both the time and height of the tide are much affected by the prevailing wind. A strong kaus will raise the level of the river by 0.6 to 0.9m and accelerate the time of HW; a strong shamal will lower the level of the river and retard the time of HW.

The change in the tidal current in the Shatt al Arab does not occur at LW because the current going in must attain sufficient strength to overcome the river outflow, which varies seasonally, being greatest in May, June, and July and least in October and November.

The strength of the current in the outer part of the Shatt al Arab varies considerably, depending upon the height of the tide and the stage of the river. The current going in may be not exist or it may attain a rate as great as 2 knots.

The maximum rate of the outgoing current is 3 to 3.5 knots at springs and 2 to 2.5 knots at neaps. Mixed currents are common, with the surface current running in one direction and the subsurface current running in another, or even the opposite, direction.

Seasonal variations in the level of the river are small at the Outer Bar, less than 0.1m, but at Al Basrah, they are considerable, being 0.7m in June and 0.4m in October; these affect HW and LW equally. In the river, the highest levels occur in May, June, and July, when the river is discharging the combined flood waters of the Euphrates River and the Tigris River.

The lowest levels occur in October and November. The dry season commences in autumn and continues until spring, when the inland snows begin to melt; during winter, however, frequent freshets are caused by local rains.

Pilotage.—Pilotage is compulsory for commercial ships in the Shatt al Arab, the approach channels thereto, and to the harbors within its entrance.

The Iranian pilot vessel cruises on station in the vicinity of the **Rooka Lighted Fairway Buoy** (29˚48'N., 48˚48'E.).

If the pilot vessel is off station temporarily, the ship requiring a pilot should anchor and communicate with the Channel Control Station (YIS) at Al Faw. Pilotage of ships bound for Iranian ports will be carried out by Iranian pilots.

The Iraqi pilot vessel is stationed 3.5 miles WSW of Mina al Bakr Terminal. Vessels bound for Iraqi ports should signal their ETA at the Outer Bar 24 hours in advance via Bashar radio station.

If bound for Abadan and other Iranian ports, the vessel's ETA should be sent 48 hours in advance to Abadan and Al Faw Control via Abadan Coast Radio Station.

17.21 Al Faw (Fao) (29˚58'N., 48˚29'E.) (World Port Index No. 48385) is mainly important in its proximity to the Iraqi Ports Administration Control Center and to its radio station. There are four T-headed oil- loading piers at the oil terminal. Tankers up to 206m long can load at the piers to a maximum draft of 10.6m, depending on tide and wind conditions and the depth over the bar.

Al Faw is a repair and stores depot for the dredges working in the Shatt al Arab. It also is the buoy depot for the port of Al Basrah and adjacent Persian Gulf waters.

Tide and traffic signals, described in paragraph 17.19, are shown from conspicuous masts atop a building at the head of Al Faw Harbor.

The mean tidal rise is about 2.7m; the maximum current velocity is 2.5 knots. Southeast and NW winds raise and lower the water level, respectively. Notice boards, painted black, with the word "slow" in white letters, are situated on the SW bank of the river above and below Al Faw. Mooring buoys, painted white, are laid near the sides of the channel in the vicinity of the harbor.

There is a coast radio station and a port radio station at Al Faw. The latter is utilized for traffic control in the Shatt al Arab and as a reporting station for ETA at the pilot station. Radio masts and towers in town are conspicuous.

Pilots, on being given 24-hour advance notice of arrival, will board ships in the vicinity of Rooka Fairway Buoy. Pratique can be requested from the Control Center 12 hours before arrival. A Berthing Master relieves the pilot off Al Faw harbor and berths and unberths the ship, while the river pilot remains aboard.

Anchorage is prohibited in an area charted between both banks of the river from the front light of the inner range of Al Faw Reach to a position off the piers 1.5 miles SE.

It has been reported (1993) that vessels with a maximum draft of 5m can transit the Shatt al Arab above Al Faw.

Qosbeh Reach extends from a bend in the river at **Ras Qosbeh** (30˚00'N., 48˚28'E.) to North House, a mud structure 3.5 miles N of the point. A conspicuous, square fort stands 1.5 miles S of North House.

The channel skirts the E bank of the river. The axis of the channel is indicated by two lights, in range 178˚. The front light is situated on the SW side of the river about 0.5 mile SW of Ras Qosbeh; the rear light is situated about 0.2 mile S of the front light.

On the W side of the river, about 1 mile above the front range light for Qosbeh Reach, is the first pair of four sets of anchoring beacons for deep-draft vessels waiting to cross the bar. The front beacon on each set is lighted and has a triangular daymark; the unlighted rear beacons each carry a daymark consisting of a St. George's Cross.

These pairs of beacons are lettered A, B, C, and D, in white on a black background, consecutively from seaward. The berths indicated by the beacons are about 410m apart. A small vessel dolphin berth with two lighted mooring buoys is situated on the W side of the river near Beacon B. A floating pipeline extends between the W shore and this berth and therefore no vessel should attempt to pass W of the dolphins. North House Beacon, 14m high, stands close W of North House.

A lighted buoy is moored about 0.2 mile W of North House Beacon. Vessels proceeding upriver, after passing the masonry pillar in Qosbeh Reach, should steer to pass between North House Beacon and the lighted buoy. Deep-draft vessels should avoid arriving off North House at LW, as the depth in the channel there is not more than 7.8m. A sunken wreck on the W side of the channel abreast North House is marked by a lighted buoy, which may be missing, close off its N side.

About 1.5 miles above **North House** (30˚04'N., 48˚27'E.), the channel closes the W bank. Two lighted buoys and a can buoy are charted up to 2 miles NW of North House Beacon.

Deep-draft ships should pass NE of these three buoys and avoid the charted sunken wrecks between North House, **Chellabi Point** (30˚08'N., 48˚24'E.), and **Brick Kiln** (30˚08'N., 48˚23'E.). The channel, marked by buoys, closes the E bank above Chellabi Point.

The village of **Khusrowabad** (30˚10'N., 48˚25'E.) is situated near an oil terminal, which is connected to Abadan by pipeline used to avoid congestion at that harbor. At least three T-headed oil piers, each about 46m long, can accommodate vessels 152m long at the oil terminal.

Kabda Reach (30˚12'N., 48˚24'E.) lies between **Kabda Point** (30˚11'N., 48˚25'E.) and Al Khast, a point about 12 miles NW. For the first 9 miles, the channel follows the SW bank of the river, the opposite bank being bordered by a chain of islands and flats, of which **Jazireh-ye Mo'aviyeh** (30˚13'N., 48˚24'E.) and Jazireh-ye Dawasir are the largest islands.

This stretch of the channel is marked by ranges best seen on the chart. Lighted buoys and wrecks in the channel may also best be seen on the chart.

17.22 Abadan (30˚20'N., 48˚17'E.) (World Port Index No. 48430) is situated on the E bank of the Shatt al Arab, about 42 miles from Outer Bar Reach. Dry cargo ships call for bunkers, load bitumen, or discharge cargo consigned to the oil company. Refined oil products are now loaded at the Bandare Mahshahr Terminal, described in paragraph 17.12..

Winds—Weather.—The NW shamal and the SE kaus are the principal winds affecting this area. From June through mid-August, a maximum shade temperature of 52˚C and a maximum sun temperature of 74˚C can be expected.

Because of the extreme heat, general cargo operations are usually suspended in the afternoon during this period.

Otherwise, weather conditions in general do not adversely affect port operations, although high winds may require special precautions during loading and discharging. The winters are damp and raw, and temperatures as low as 4˚C. have been recorded. Thunderstorms are quite common from February through April.

Tides—Currents.—At Abadan during the river flood season, the flood tidal current will not have any appreciable effect when the tide is less than 2.4 or 2.7m on the outer bar.

At the height of the flood season, the flood tidal current may be entirely overcome; at this time the ebb current may attain a velocity of 5 knots.

Under ordinary conditions, the flood tidal current commences at Abadan about the time of HW on the outer bar, but the time of the commencement of the ebb current varies greatly. The average velocity of the flood current is 1.5 knots while the ebb can attain a rate of 3 knots.

A strong kaus will accelerate the time of HW and raise the water level 0.6 or 0.9m. A strong shamal will retard the time of HW and lower the water level so much that the tide may fall below the zero of the tide gauge.

In the river, the highest water level occurs between May and July; the lowest levels occur in October and November.

Depths—Limitations.—Central depths in the river harbor fronting the area are 9.1 to 15.2m; depths alongside the principal berths range from 2.1 to 9.8m, mean low fresh water. In the three tidal basins in the vicinity, the depths are about 2.1m.

The main channel in the vicinity of the port occupies the E half of the river. with the 10m curve in the center and depths of 5.5m and less on the W side. A dangerous wreck lies sunk about 0.4 mile SE of the harbormaster's office. The harbor area has no clearly defined natural limits, but "slow" notice boards just S of Bavardeh and W of Bairaim, the area on the N side of the river abreast Al Kast Point, mark the official harbor limits.

The harbor consists of the river fronting the tank farms, the refinery area, and the residential district. It is approximately 4 miles long and 0.5 mile wide, with all facilities situated along the NE and N side of the river; Central Stores Creek, Berey Creek, and Drum Creek are three improved tidal basins which extend a short distance inland on the same side. Vessels up to

183m long can safely enter the port. The width of the river in the pier areas is the limiting factor. Under special conditions, vessels exceeding this length may be accommodated.

17.23 Abadan and Bavardeh (30˚19'N., 48˚19'E.) consists of 28 berths, some of which can accommodate ocean-going ships. However, since oil shipments have been reduced, the only working piers are Nos. 3, 4, 7, 9, 11, 16, 22, and 26. These piers are used for bunkering and dry cargo operations. There are numerous mooring buoys on the W side of the river within the port area.

Depths—Limitations.—The maximum draft at the river anchorage berths is 9.1m. It is reported that several of the buoys are missing and vessels anchor in their previous positions.

No. 7 pier, with a length of 510m, contains three berths, which can accommodate vessels with a maximum draft of 8.5 to 9.1m.

Limitations for the bunkering jetties are, as follows:

Berth No.	Maximum vessel draft
3	9.4m
9	8.5m
16	6.4m
22	7.6m

All drafts are for fresh water. The harbormaster boards vessels at the harbor limits and berths them as necessary.

The port is open for day and night navigation, with arrival and departure being controlled by the tide. Vessels normally enter The Bar 4 hours before HW at The Bar or 2 hours after HW at The Bar.

Those entering 4 hours before arrive at Bavardeh Anchorage generally during flood tide, so they must anchor for 6 hours awaiting the ebb. Those entering 2 hours after HW arrive at Bavardeh during the ebb tide and berth on arrival, providing a berth is available, weather conditions permit, and outward movements do not delay.

Vessels berth starboard side-to, stemming the ebb current and without using tugs. Vessels depart Abadan 4 to 6 hours before HW at The Bar.

Pilotage.—Pilotage is compulsory for all ships, except Government ships of Iran and Iraq, entering, departing, or navigating the river. The pilot is boarded in the vicinity of Rooka Lighted Fairway Buoy. The Iraqi Ports Administration requires a 24-hour prior notice before supplying a pilot.

Regulations.—There is a coast and a port radio station at Abadan. The mast of the radio station is situated about 0.5 mile NNE of No. 1 Berth. The port radio station is situated at **Al Wasiliyah** (30˚18'N., 40˚18'E.), SW of No. 26 Berth.

The oil company coast radio station (call sign EQZ) operates continuously. Ships approaching Abadan shall give their ETA at Shatt al Arab Outer Bar 48 hours before arrival; ships also transmit their ETA to the Control Officer via Abadan coast radio station so there will be no delay with the river pilot.

A standard quarantine message should be transmitted to the Port Health Officer at Al Faw 24 hours prior to arrival at the Outer Bar. The Iraqi Port Health Officer will grant pratique before ships can proceed up the river. This does not clear vessels for Iran, and after the vessels are anchored or berthed at Abadan, boarding will take place to grant pratique for Iran.

The Iraqi National Flag should be displayed until the ship comes within the port limits of Abadan, when the Iranian National Flag is displayed.

The entire harbor area of Abadan is a Danger Zone and special regulations are in force therein. No anchoring, except in the designated anchorages, is allowed. Vessels must proceed at slow speed. As shipping is underway day and night, it is necessary that mooring lines be taut to prevent surging at the piers. Ships proceeding in the same direction are not permitted to overtake or pass each other between Mo'aviyeh Spit and Outer Western Lighted Buoy.

Vessels in Abadan Reach should never sound their sirens except in an emergency, as the "fire alarm" at Abadan and Bavardeh is given by siren.

Fire aboard ship is indicated by a continuous ringing of the ship's bell, together with a succession of long blasts on the whistle.

Anchorage.—In transit of the Shatt al Arab, the recognized anchorages are the Oosbeh Anchorage (Kasba Anchorage), situated about 2 miles above Al Faw, with a maximum depth of 10.7m (fresh water), and the Bavardeh Anchorage, situated about 2 miles above Abadan, with a maximum depth of 9.4m (fresh water).

Vessels with a draft too great to allow departing the Shatt al Arab on one tide are required to anchor at Qosbeh. Below and opposite Bavardeh, there are five anchoring berths, lettered "A" to "E," with the limits of each berth marked by transit beacons on the SW bank of the river. Depths at these berths range from 9.1 to 10.6m. but a maximum draft of 9.1m is permitted.

All ships, whether awaiting a berth or loaded, must anchor below the lowest pier at Bavardeh; no ship bound for Abadan or Bavardeh may ascend the river above the pier until a harbormaster is aboard.

17.24 Al Khast Reach extends from **Al Kast** (30˚20'N., 48˚16'E.) for about 8 miles to 0.5 mile above **Harteh Point** (Hartah Point) (30˚22'N., 48˚11'E.). North of Al Kast, the deep channel is on the N side of the river. but it then crosses to the S side, SE and S of Jazireh-ye Minu (Jazireh-ye Menu). It then skirts the W side of that island, passing E of Jazirat al Qitah (Lazirat Qatah) and Jazirat Abu Dawad (Jazirat Abu Daud) and the banks extending N from the latter.

A prohibited anchorage area, indicated on the chart, lies in the river between Abadan No. 1 Pier and a notice board on the N bank about 2 miles W. The channel NE and E of Jazireh-ye Minu is only available to boats.

With a strong outgoing tidal current, an eddy, which must be guarded against, is formed in the S part of the river S of Jazirat-ye Minu.

A lighted buoy, moored on the W side of the channel about 0.5 mile SW of Harteh Point, marks the E edge of the bank extending N from Jazirat Abu Dawud. Anchorage is prohibited in the river about 2 miles N of Jazirat Abu Dawud, where a pipeline area is marked by notice boards ashore.

Anchorage for five vessels awaiting the tide can be taken, in a depth of about 8.5m, fresh water, in the vicinity of Harteh Point.

17.25 Karun Bar (30˚23'N., 48˚11'E.) extends from about 0.5 mile above Harteh Point to just below the junction of Haffar Channel with the Shatt al Arab, about 3 miles farther N. The track across the bar varies considerably, especially at the beginning of the flood season in March or April, when very rapid changes in the channel can be expected. Such changes prevent the establishing of permanent range marks; lighted buoys are moved as necessary to indicate the channel.

During times the bar is in an unsettled condition, a surveying vessel is stationed there to check the depths and, when necessary, a special pilot boards inbound vessels in the vicinity of Harteh Point to conduct them across the bar. Except in the flood season, the least depth over the bar is 5.8m. The channel depth over the bar is normally maintained at 7.0m; the maximum fresh water draft that can be taken over is 8.5m at springs and 8m at neap.

Vessels arriving with deeper draft are required to lighten; barges for this purpose can be sent down either from Al Basrah or Khorramshahr, depending on the vessel's destination.

This is a seasonal bar formed by the freshets from **Ras-e Karun** (30˚26'N., 48˚11'E.) bringing down silt into the Shatt al Arab before the latter river is sufficiently in flood to keep the silt moving. Since the bar is constantly changing, the latest information on depths and navigational aids should be obtained from the Port Officer.

Under normal conditions, HW on this bar occurs about 3 hours after HW on the outer bar; the rise is approximately 2 2m at springs and 1.6m at neaps, except during the flood season, when it may be as much as 3.5m. Lower LW generally does not fall below a rise of 0.7m on the bar.

Numerous surveying markers are maintained on each bank of the river in the vicinity of the bar; those bearing even numbers stand on the E bank, with the odd-numbered markers on the W bank. Lighted buoys, moored 1 mile and 1.5 miles above Harteh Point, mark the W side of the channel.

Two lights are shown near the SE end of **Umm Ar Rasas** (30˚25'N., 48˚10'E.). Dabbah Spit Lighted Buoy marks the extremity of a spit, on the W side of the bar, extending SE from Umm Ar Rasas.

Haffar Channel (30˚25'N., 48˚10'E.) is the outer part of the Ras-e Karun between the Shatt al Arab and Khorramshahr. There is a drying pier on the N side of the entrance. There are several T-headed piers, with depths up to 4.9m alongside, on the S bank of the river opposite Khorramshahr. There are several mooring buoys in the river. Four sets of uncharted anchoring beacons. lettered A to D, mark anchoring berths E of No. 5 Pier.

17.26 Khorramshahr (30˚26'N., 48˚11'E.) (World Port Index No. 48420) lies at the junction of the Shatt al Arab and Rud-e Karun, and was once considered the principal commercial port of Iran before there was extensive damage in the conflict; reconstruction is underway. The city extends about 2 miles along the N shore of the river within the entrance of Rud-e Karun.

Winds—Weather.—The NW shamal and the SE kaus are the principal winds which affect the port by their influence on the time and height of the tide; climatic conditions have little effect on port operations.

From March through September, daytime shade temperatures may reach 49˚C; sun temperatures in July sometimes approach 74˚C. In winter, temperatures of -1˚C have been recorded. The mean daily minimum temperature for January is 8˚C.

December and January are considered the wettest months for rainfall. Relative humidity varies from near zero in August to 77 percent in January.

Tides—Currents.—The tidal rise at Khorramshahr is about 2.1m at springs and 1.7m a neaps. The maximum velocity of the flood current is 1.5 knots. The maximum velocity of the ebb current is 3 knots.

The tides vary according to the season, with the highest tides occur during May to June and the lowest in October. Both time and height of tide are greatly affected by the prevailing wind. A strong kaus will raise the water level 0.6 to 0.9m; a strong shamal will retard the time of HW and lower its level, causing the water level to fall below the zero of the tide gage.

Winter floods cause a maximum rise of 3.5m in the water level.

Depths—Limitations.—Depths vary from 8.2 to 8.5m off and above Harteh Point and its anchorage. There is a wharf (Sentab Jetty) at least 1,501m long running parallel to the river and adjacent to the N entrance point of Haffar Channel; the wharf contains nine ocean-going berths.

Berth No. 10 accommodates lighters, which are heavily used to relieve congestion at anchorages. Depths alongside range from 6.5 to 9.2m.

Close NW are four additional berths, with a total length of 720m, that can accommodate vessels up to l0,000 dwt; there are depths of 6.7 to 8m alongside. Docking and undocking is accomplished between sunrise and sunset.

Due to congestion in port, both at the berths and anchorage, ships should have their mooring lines taut, especially during tidal changes, and their main engines ready to use.

Ship’s speed shall not exceed 3.5 knots for vessels with more than a 6.1m draft and 5 knots for all other vessels over 100 grt, on passing wharfs, piers, etc.

The Iraqi Port Health Officer at Al Faw will grant ratique before the ship proceeds upriver, on receipt of the standard quarantine message sent 24 hours prior to arrival at the Outer Bar. This pratique does not clear vessels for Iran. After ships are anchored or berthed at Khorramshahr the medical officer will board to grant Pratique.

The National Flag of Iraq must be displayed until the ship has entered the port limits of Khorramshahr. The Iranian National Flag is then displayed.

Pilotage.—Pilotage is compulsory for all commercial ships entering or departing the Shatt al Arab. The river pilots are furnished by the governments of Iran and Iraq. The pilot boards near Rooka Lighted Buoy.

The pilotage ends at the harbor limits of Khorramshahr or its anchorage, from where a Berthing Master takes over and will either anchor the ship or take it alongside, if a berth is available.

The port authorities require 24 hours notice of arrival before ordering a pilot. The vessel’s ETA should be sent 24 hours before arrival and should include the following information:

1. LOA.
2. Fresh water draft.
3. Details of cargo (vessels carrying explosives are not allowed to berth).

4. Other requirements, as requested.

Anchorage.—Ships with a draft up to 8.2m anchor in the river NW of the entrance of Haffar Channel and discharge cargo into lighters if a berth is unavailable. There are five or more mooring buoys along the NE side of the river above Sentab Jetty.

Anchorage is taken all along the river sides, clear of the main channel, as far as **Umm al Khasasif** (30˚26'N., 48˚08'E.), but the entire area is very congested with ships.

Mooring buoys on the E side of the river below Haffar Channel are used by light draft naval vessels.

Caution.—A wreck, dangerous to navigation and marked by a lighted buoy, lies 1 mile NW of Haffar Channel entrance.

On the S side of the main channel between the entrance of Haffar Channel and Al Basrah are the islands of Umm al Khasasif, Umm al Libabi, Jazirat Rumaylah, and Jazirat al Baljaniyah; on the N side are the islands of Jazirat ash Shamshamiyah, Jazirat Umm at Tuwaylah, and Jazirat Ujayrawiyah.

The channel follows the N bank of the river to the W end of Umm al Khasasif, where it passes through Satan's Gap, between Umm al Khasasif and Jazirat ash Shamshamiyah.

It then skirts the S sides of Jazirat ash Shamshamiyah and Jazirat Umm at Tuwaylah until about 2 miles above the W end of Jazirat Ujayrawiyah, when it follows the S bank of the river.

White pillars, marking the boundary between Iran and Iraq, are situated on each side of the mouth of **Khayyen Canal** (30˚27'N., 48˚07'E.).

Satan's Gap (30˚27'N., 48˚06'E.) is a narrow passage; the channel is marked on its N side by a lighted buoy and on its S side by a can buoy.

Ships running with the current have the right of way through Satan's Gap.

A stranded wreck lies on the N side of Satan's Gap; another wreck lies sunk, in a depth of 8.5m, near the middle of Satan's Gap, causing a major compass deflection.

A 7m patch, marked by a lighted buoy close off its W side, lies about 0.2 mile NNW of the W extremity of **Jazirat al Baljaniyah** (30˚27'N., 48˚03'E.).

Mooring buoys for ocean-going ships are situated on the N side of the channel, about 6 miles from Jazirat al Baljaniyah.

17.27 Al Basrah (30˚30'N., 47˚49'E.) (World Port Index No. 48400) before the conflict was the principal commercial port of Iraq. The city and old town is situated about 2 miles within the **Nahr al Ashshar** (30˚31'N., 47˚51'E.), an inlet leading from the port area on the Shatt al Arab.

Al Ma'qil (30˚33'N., 47˚48'E.) is the main port area, containing almost all the port installations, wharves, and warehouses. Al Ashshar, the principal mercantile section of the town, is situated along the river on either side of Nahr al Ashshar.

Winds—Weather.—Strong winds are rare in Al Basrah, the average force being 3 knots. The summer months are usually dry and hot, with prevailing winds from N.

Southerly winds, which are fairly frequent during April, May, August, and September, usually cause a sharp increase in humidity. From June through the middle of August, the average temperature is well over 32˚C, and maximums of over 88˚C have been recorded.

During the winter months, from November through April, the climate is damp and raw. Temperatures may occasionally drop below freezing. Rainfall mostly occurs during the winter months in short heavy downpours.

Tides—Currents.—Tides in the Shatt al Arab are considerably affected by wind conditions and by seasonal variations in the river level. A strong SE wind will raise the level of the river by 0.6 or 0.9m and will also accelerate the time of HW. A strong NW wind will cause the level of the river to drop below zero on the tide gauge and will retard the time of HW.

The mean rise at HHW on the outer bar is 3m; at Al Basrah it is 2.1m. Seasonal variations in the level of the river are small at the outer bar, but at Al Basrah they are as much as 0.6m in June and 0.2m in October.

In the river, the highest levels occur in May, June, and July, when the Shatt al Arab is discharging the combined flood waters of the Tigris River and the Euphrates River.

Tidal currents vary considerably throughout the Shatt al Arab; at Al Basrah, the velocity of the tidal currents varies with the seasons. During the flood season, the outgoing current may attain a rate of 4 knots.

During the dry season, the currents going in and out vary from 1 to 2 knots. The time of turning of tidal currents does not coincide with the times of HW and LW.

At Al Basrah, the flood current begins 3 hours 30 minutes before the time of HW; and the ebb current begins about 1 hour 45 minutes after the time of HW.

Depths—Limitations.—The maximum draft for a ship proceeding to Al Basrah is determined by the depth of water on Karun Bar. If lightering into barges is necessary, this operation can be carried out at Harteh Anchorage. Final loading may also have to be expedited at this anchorage.

At Al Maqil, there is a continuous wharf 2,000m long, which has 14 berths, although only 12 vessels can berth simultaneously. There are depths of 8.2 to 9.1m alongside the wharf. A vessel with a maximum length of 171m can be accommodated.

The grain wharf, situated S of the entrance to **Nahr al Kibasi** (30˚33'N., 47˚49'E.), is 213m long. It can accommodate a vessel with a maximum length of 183m and a maximum draft of 8.8m.

Muftiyah Oil Depot, below the grain silo, is 175m long and will accommodate ships about 158m long with a draft of 6.7m, subject to silting.

The fertilizer wharf at **Abu Flus** (30˚27'N., 48˚02'E.) is 100m long and will accommodate a vessel with a maximum length of 182m and a maximum draft of 8.8m.

There are numerous mooring buoys in the river, which are mainly used by ships loading export cargo. Vessels may load and discharge cargo at the wharves, but on completion of the latter, must move to the moorings or anchorage to complete loading. Ships are often moored in double rows in the river and off-loaded to many lighters, which is a cause of congestion.

Pilotage.—Pilotage is compulsory. The pilot vessel cruises on station in the vicinity of Rooka Lighted Buoy. An Iraqi pilot will conduct the ship within the harbor limits of Al Basrah, where the harbormaster will take the ship to a berth or an anchorage.

A 48-hour radio notice of ETA is required before pilot will board. Radio contact should be maintained with Basrah Radio (call sign YIR) and through VHF channels 14 and 12. Pilots will get ships underway day and night if the tide is favorable.

Transit of the Shatt al Arab cannot be accomplished on one tide and the ship must anchor at one of the recognized anchorages on the river.

A ship bound for the principal wharves at Al Maqil will be boarded by a harbormaster off the grain wharf. A ball displayed at the signal station indicates the harbormaster is on his way to the ship; a cone displayed indicates the vessel should anchor and await his arrival.

While within Iraqi Territorial waters, ships underway will maintain a listening watch on channel 16 for instructions by control authorities. Ships bound for Al Basrah should advise the Iraq Maritime Transport Company, via Al Basrah Radio (YIR 3), of their ETA at Shatt al Arab Outer Bar 48 hours prior to arrival.

Masters should also advise their ETA at least 24 hours before arrival in Iraqi waters to the Control Officer, Al Basrah Control Radio (YIR).

Regulations.—There are coast and port radio stations at Al Maqil and a port radio station at Al Makinah.

A message should be directed to FAO Radio (YIS) requesting free pratique from the Medical Officer, Al Faw, and giving state of health of crew and the arrival time at the pilot station. The ship is boarded at Al Faw and pratique is usually granted by the Medical Officer prior to arrival at Al Basrah.

Special regulations that apply are in force at the port of Al Basrah. Vessels should obtain a copy of these regulations on arrival in port.

Anchorage.—Anchorage can be taken at the numerous mooring buoys in the river off the port, as indicated on the charts. Ships secure bow and stern to the buoys.

There are recognized anchorages off **Nahr al Khawrah** (Khora Anchorage) (30˚30'N., 47˚51'E.), in a depth of 8.8m (fresh water). Ships can also anchor, in similar depths, at Jubaylah Anchorage, situated off the grain wharf and silo.

Vessels anchor with two bow anchors ranged to four shots of chain parallel to the river.

At Abu Flus, about 12 miles above Harteh Point, there is anchorage, in a depth of 8.8m. However, the area is constricted, the current is strong, and the bottom is shifting sand, so the vessel may drag anchor.

17.28 The Shatt al Arab is navigable as far as Al Qurnah, about 40 miles above Al Basrah, by vessels with a draft of 4.6m. The deeper channel is NE of Jazirat al Waqf al Muhammadiyah and North Island, about 0.5 mile farther NW; the bottom everywhere is mud.

Hawr al Hammar (Hammar Lake) discharges through Qarmat Ali Channel into the Shatt al Arab abreast the gap between Jazirat al Waqf al Muhammadiyah and North Island.

Overhead telegraph wires, with about 21.3m clearance, span the mouth of Qarmat Ali Channel. The W bank of the Shatt al Arab, above and below Qarmat Ali Channel, is bordered with brick kilns.

Nahr Kutayban (Kutaiban Canal) (30˚41'N., 47˚46'E.) enters the E side of the Shatt al Arab about 5 miles N of North Island and is reported to connect with Rud-e Karun.

The E bank of the Shatt al Arab, between Al Basrah and the canal, is bordered with date groves; N of the canal is an open, sandy desert.

The W bank of the river in this vicinity has a thin fringe of date palms, beyond which is desert that is sometimes flooded.

About 2 miles N of the entrance of Nahr Kutayban, the river turns NW, with general depths of 7.3 near its NE bank.

Near the SW bank, it is shoal for the first 2 miles, after which it is steep-to on that side; there are greater depths close to a prominent point, above which vessels should keep to the SW side of the river.

Nahr Umar is on the SW bank of the river, about 6 miles above the mouth of Nahr Kutayban. For the next 17 miles, there are no navigational difficulties.

Ash Shafi Creek, with some brick kilns at its entrance, is easily identified where it enters the river about 10 miles above Nahr Umar; the W bank N of the creek is backed by an open plain.

About 1.5 miles N of Ash Shafi Creek, there are depths of less than 3.6m, but farther N depths increase to 6.4m.

About 3 miles N of the creek, the river narrows; the W bank, which is thickly bordered with date palms, is steep-to, with a depth of 7.3m close alongside.

About 8 miles above Ash Shafi Creek, Nahr Shuwayyib (Shuwaiyib River) flows in on the E side, where the Shatt al Arab is narrowest.

17.29 Odin Point (30˚59'N., 47˚29'E.) is on the W bank, close N of Nahr Shuwayyib, where the Shatt al Arab widens into Qurnah Reach, and the bar of the combined Tigris River and Euphrates River is formed.

The greatest depth is close along the NE bank, where the channel is very narrow and has a least depth of 2.1m in the fairway. After passing the bar, the Shatt al Arab narrows again and the depth increases to about 11m at the junction of the rivers.

Al Qurnah (31˚00'N., 47˚26'E.) is a small town that is situated on the point at the confluence of the Tigris River and the Euphrates River. It is connected with the general telegraph system.

From Al Qurnah to **Amara** (31˚43'N., 47˚06'E.), the general depth is about 4.0m at high river and 1.8m at low river.

Between Al Qurnah and **Al Azair** (31˚19'N., 47˚25'E.), the river is marked by black posts and white posts; these posts denote the course of the river when the banks are covered during floods.

For the first 10 miles, there are depths of 3.6 to 7.5m; the current is strong.

Some bad bends will be found between Al Qurnah and Amara; some reaches are extremely difficult during the low river season because of the narrow and tortuous course of the channel, combined with a very strong current.

Great care must be taken to avoid grounding on the spits, which extend a considerable distance at the worst bends.

The river level is much affected by the regulated flow to a number of canals leading off the river. These carry off the water, with a resulting drop of 0.3 to 0.5m in the water level at times.